#### **Supplementary Materials**

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#### **Supplementary Methods**

#### App development

In this prospective cohort study, data were acquired from CSS, through a mobile application for iPhone® and Android® users launched jointly by ZOE Limited. and KCL on 24 March 2020. <sup>15</sup> The COVID Symptoms Study app was tested before its launch, as well as before the release of any new version; software for repeatable and consistent data extraction, curation, and analytics was also engineered. <sup>48</sup>

The app is concurrently available to be download to Android and iOS, in both English and Swedish, noting the countries where it is currently available are the UK, US, and Sweden). The app was widely publicised in these countries during the peak of the pandemic, and new functionalities were added when appropriate to address the needs of the population, such as the registration of side-effects of the vaccination. Additionally, to keep the users engaged to the study, daily and weekly updates regarding research conducted using the data collected via the app are provided to participants (with notification through the app, email alerts, and posted on the website **ZOE** COVID Study (joinzoe.com)).

#### **Testing Kits**

SARS-CoV-2 testing kits were supplied by the Department of Health and Social Care, UK Government. These were sent to app users on their request.

# **Supplementary Results: Tables**

# Supplementary Table S 1. List of symptom questions asked by the COVID Symptom Study app. Questions

were: Do you have (symptom)? Answers were yes/no, unless indicated otherwise.

| Symptom                       | COVID Symptom Study app question   |
|-------------------------------|--|
| Fever                         | Fever (at least 37.8C or 100F)   |
| Persistent Cough              | Persistent cough (coughing a lot for more than an hour or 3 or more coughing episodes in 24 hours)   |
| Fatigue                       | Unusual fatigue (no; mild fatigue; severe fatigue/ I struggle to get out of bed)   |
| Dyspnoea                      | Shortness of breath or trouble breathing (no; yes mild symptoms/ slight shortness of breath during ordinary activity: yes significant symptoms/ breathing is comfortable only at rest; yes, severe symptoms/ breathing is difficult even at rest). |
| Anosmia/Ageusia               | Loss of smell / taste  |
| Hoarse Voice                  | Unusually hoarse voice   |
| Chest Pain                    | Unusual chest pain or tightness in your chest  |
| Abdominal Pain                | Unusual abdominal pain or stomach ache   |
| Diarrhoea                     | Diarrhoea  |
| Delirium                      | Confusion, disorientation or drowsiness  |
| Eye Soreness (ophthalmalgia)  | Do your eyes have any unusual eye-soreness or discomfort (e.g. light sensitivity, excessive tears, or pink/red eye)?   |
| Loss of appetite (anorexia)   | Skipping meals   |
| Headache                      | Headache   |
| Nausea                        | Nausea or vomiting   |
| Dizziness                     | Dizziness or light-headedness  |
| Sore Throat                   | Sore or painful throat   |
| Myalgias                      | Unusual strong muscle pains or aches   |
| Red Welts in Face and<br>Lips | Raised, red, itchy welts on the skin or sudden swelling of the face or lips  |
| Blisters on feet              | Red/purple sores or blisters on your feet, including your toes   |
| Sensitive Skin                | Strange, unpleasant sensations in your skin like pins & needles or burning   |
| Brain Fog                     | Loss of concentration or memory (brain fog)  |
| Dysosmia/Dysgeusia            | Altered smell / taste (things smell or taste different to usual)   |
| Rhinorrhoea                   | Runny nose   |
| Sneezing (sternutation)       | Sneezing more than usual   |
| Ear Pain (otalgia)            | Earache  |

| Lymphadenopathy | Swollen neck glands  |
|-----------------|----------------------|
| Palpitations    | Irregular heart beat |

Supplementary Table S 2. List of local symptoms caused by the COVID Symptom Study app, caused by vaccination. Questions were: Do you have (symptom)? Answers were yes/no, unless indicated otherwise. These symptoms were excluded from this analysis.

| Symptom        | COVID Symptom Study app question      |
|----------------|---------------------------------------|
| Tenderness     | Tenderness near the site of injection |
| Pain           | Arm pain                              |
| Redness        | Redness near the site of injection    |
| Swelling       | Arm or local swelling                 |
| Warmth         | Warmth near the site of injection     |
| Bruising       | Bruising near the site of injection   |
| Swollen glands | Swollen glands in the armpit          |

**Supplementary Table S 3. Properties and features of models used in this study.** The input variables of each model (covariates) include both all the symptoms registered in the app (Supplementary Table S1), and/or the demographic information about the participant, including age, gender and BMI. The input variables also include either the patient received the first or second dose of the vaccine (defined as dose).

| Models                            | Input variables  | Response<br>variable                 | Model Characteristics   | COVID-19 studies  |
|-----------------------------------|--|--------------------------------------|---|---|
| Bayesian<br>mixed-effect<br>model | Fixed effects: all symptoms (Supplementary Table S1).  Random effects: demographic information (age, BMI, gender), vaccine dose. | Test outcome – probabilistic outcome | Parametric model <sup>49</sup>                                      | N/A   |
| Logistic regression               | All symptoms (Supplementary Table S1)demographic information (age, BMI, gender), and vaccine dose.                               | Test outcome – binary outcome        | Parametric model  | COVID-19 detection<br>using self-reported<br>symptoms <sup>21</sup>                           |
| Random<br>forest                  | All symptoms (Supplementary Table S1)demographic information (age, BMI, gender), and vaccine dose.                               | Test outcome –<br>binary outcome     | Non-parametric model -<br>intrinsic feature space<br>transformation | Identification of early<br>stage symptoms of<br>SARS-Cov-2 infected<br>patients <sup>50</sup> |
| Clinical<br>symptom<br>clustering | All symptoms (Supplementary Table S1).   | Test outcome                         | Clinical association of symptoms.                                   | N/A   |
| NHS<br>diagnostic<br>criteria     | Fever, Cough, Anosmia,<br>Dysosmia   | Test outcome                         | Screening criteria adopted by NHS                                   | COVID-19 test referencing   |

### Supplementary Table S 4. Listing of clinical symptoms grouping.

| Clinical grouping                | List of symptoms   |
|----------------------------------|--|
| Upper respiratory tract symptoms | anosmia, sore throat, rhinorrhoea, sneezing, ear pain, dysosmia  |
| Respiratory                      | persistent cough, dyspnoea, chest pain, hoarse voice, plus any/all of the upper respiratory tract list   |
| Systemic                         | fever, fatigue, delirium, headache, chills or shivers, eye soreness, myalgias, dizzy, light-headed, swollen glands [other than axillary lymph nodes in vaccinated arm], brain fog, irregular heartbeat |
| Abdominal                        | diarrhoea, abdominal pain, nausea, loss of appetite  |
| Cutaneous                        | blisters on feet, sensitive skin and red welts on face and lips  |

Supplementary Table S 5. Profiles of illness in symptomatic individuals after the  $1^{st}$  dose of vaccination (N=145) and  $2^{nd}$  dose (N=4). Cells show absolute number (percentage in parentheses) of symptomatic individuals for symptoms reported at any time during first week, in positive vs. negative cases.

|                      | First dose (N=145)                     |            | Second dose (N=4)                          |   |  |  |
|----------------------|--|------------|--|---|--|--|
| Sympto<br>ms         | Positive test for SARS-CoV-2 infection |            | Positive test for SARS-<br>CoV-2 infection | Negative test for SARS-<br>CoV-2 test infection |  |  |
| Headache             | 86 (59.3)                              | 101 (70.0) | 3 (0.75)                                   | 3 (0.75)  |  |  |
| Chills or<br>Shivers | 56 (38.6)                              | 60 (41.3)  | 0 (0.0)                                    | 1(0.25)   |  |  |
| Fever                | 40 (27.6)                              | 36 (24.8)  | 1(0.25)                                    | 0 (0.0)   |  |  |
| Sore<br>Throat       | 32 (22.1)                              | 117 (11.7) | 1(0.25)                                    | 0 (0.0)   |  |  |
| Myalgias             | 29 (20.0)                              | 25 (17.2)  | 2 (0.50)                                   | 0 (0.0)   |  |  |
| Rhinorrh<br>oea      | 27 (18.6)                              | 19 (13.1)  | 2 (0.50)                                   | 1(0.25)   |  |  |
| Sneezing             | 23 (15.9)                              | 12 (8.3)   | 1(0.25)                                    | 0 (0.0)   |  |  |
| Nausea               | 22 (15.2)                              | 26 (17.9)  | 0 (0.0)                                    | 0 (0.0)   |  |  |
| Dizziness            | 22 (15.2)                              | 31 (21.4)  | 0 (0.0)                                    | 1(0.25)   |  |  |
| Loss of<br>Appetite  | 19 (13.1)                              | 17 (11.7)  | 0 (0.0)                                    | 0 (0.0)   |  |  |
| Abdomin<br>al Pain   | 16 (11.0)                              | 18 (12.4)  | 0 (0.0)                                    | 2 (0.50)  |  |  |
| Diarrhoe<br>a        | 14 (9.7)                               | 10 (6.9)   | 0 (0.0)                                    | 0 (0.0)   |  |  |
| Eye<br>Soreness      | 12 (8.3)                               | 13 (9.0)   | 0 (0.0)                                    | 0 (0.0)   |  |  |

| Persistent<br>Cough | 12 (8.3) | 4 (2.8)  | 0 (0.0)  | 0 (0.0) |
|---------------------|----------|----------|----------|---------|
| Hoarse<br>Voice     | 12 (8.3) | 5 (3.4)  | 2 (0.50) | 0 (0.0) |
| Chest<br>Pain       | 11 (7.6) | 7 (4.8)  | 0 (0.0)  | 0 (0.0) |
| Delirium            | 10 (6.9) | 5 (3.4)  | 0 (0.0)  | 0 (0.0) |
| Fatigue             | 9 (6.2)  | 9 (6.2)  | 0 (0.0)  | 1(0.25) |
| Brain Fog           | 9 (6.2)  | 13 (9.0) | 0 (0.0)  | 0 (0.0) |
| Dysosmi<br>a        | 7 (4.8)  | 6 (4.1)  | 1(0.25)  | 0 (0.0) |
| Sensitive<br>Skin   | 6 (4.1)  | 4 (2.8)  | 0 (0.0)  | 0 (0.0) |
| Anosmia             | 5 (3.4)  | 2 (1.4)  | 0 (0.0)  | 0 (0.0) |
| Ear Pain            | 4 (2.8)  | 6 (4.1)  | 0 (0.0)  | 0 (0.0) |
| Swollen<br>Glands   | 4 (2.8)  | 6 (4.1)  | 1(0.25)  | 0 (0.0) |
| Palpitatio<br>ns    | 3 (2.1)  | 11 (7.6) | 0 (0.0)  | 0 (0.0) |
| Red<br>Welts FL     | 1(0.7)   | 1(0.7)   | 0 (0.0)  | 0 (0.0) |
| Blisters<br>on Feet | 1(0.7)   | 0 (0.0)  | 0 (0.0)  | 0 (0.0) |
| Dyspnoe<br>a        | 0 (0.0)  | 0 (0.0)  | 0 (0.0)  | 0 (0.0) |

Supplementary Table S 6. Symptom prevalence and distribution during the first week after vaccination, in symptomatic individuals testing positive for SARS-CoV-2 infection. Data report number (percentage in parentheses) of individuals with each symptom on each day after first vaccination (N = 145).

| Days after vaccination | Positive SARS-CoV-2 |          |          |           |           |          |           |           |
|------------------------|---------------------|----------|----------|-----------|-----------|----------|-----------|-----------|
|                        | 0                   | 1        | 2        | 3         | 4         | 5        | 6         | 7         |
| Headache               | 1 (0.7)             | 10 (6.9) | 11 (7.6) | 29 (20.0) | 15 (10.3) | 12 (8.3) | 23 (15.9) | 31 (21.4) |
| Chills or Shivers      | 0 (0.0)             | 6 (4.1)  | 7 (4.8)  | 15 (10.3) | 10 (6.9)  | 10 (6.9) | 12 (8.3)  | 12 (8.3)  |
| Myalgias               | 1 (0.7)             | 1 (0.7)  | 2 (1.4)  | 10 (6.9)  | 2 (1.4)   | 3 (2.1)  | 8 (5.5)   | 15 (10.3) |
| Fever                  | 0 (0.0)             | 8 (5.5)  | 6 (4.1)  | 8 (5.5)   | 2 (1.4)   | 5 (3.4)  | 8 (5.5)   | 8 (5.5)   |
| Dizziness              | 0 (0.0)             | 2 (1.4)  | 2 (1.4)  | 7 (4.8)   | 6 (4.1)   | 3 (2.1)  | 5 (3.4)   | 8 (5.5)   |
| Sneezing               | 0 (0.0)             | 1 (0.7)  | 1 (0.7)  | 6 (4.1)   | 2 (1.4)   | 4 (2.8)  | 2 (1.4)   | 12 (8.3)  |
| Nausea                 | 0 (0.0)             | 3 (2.1)  | 2 (1.4)  | 6 (4.1)   | 2 (1.4)   | 1 (0.7)  | 3 (2.1)   | 7 (4.8)   |
| Sensitive Skin         | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 6 (4.1)   | 0 (0.0)   | 0 (0.0)  | 3 (2.1)   | 0 (0.0)   |
| Rhinorrhoea            | 0 (0.0)             | 3 (2.1)  | 1 (0.7)  | 4 (2.8)   | 6 (4.1)   | 3 (2.1)  | 7 (4.8)   | 11 (7.6)  |
| Eye Soreness           | 0 (0.0)             | 1 (0.7)  | 0 (0.0)  | 4 (2.8)   | 2 (1.4)   | 0 (0.0)  | 4 (2.8)   | 7 (4.8)   |
| Loss of Appetite       | 0 (0.0)             | 4 (2.8)  | 2 (1.4)  | 3 (2.1)   | 0 (0.0)   | 4 (2.8)  | 7 (4.8)   | 8 (5.5)   |
| Chest Pain             | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 3 (2.1)   | 0 (0.0)   | 1 (0.7)  | 10 (6.9)  | 3 (2.1)   |
| Sore Throat            | 1 (0.7)             | 3 (2.1)  | 5 (3.4)  | 3 (2.1)   | 2 (1.4)   | 2 (1.4)  | 14 (9.7)  | 14 (9.7)  |
| Brain Fog              | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 3 (2.1)   | 1 (0.7)   | 2 (1.4)  | 7 (4.8)   | 7 (4.8)   |
| Hoarse Voice           | 0 (0.0)             | 1 (0.7)  | 0 (0.0)  | 2 (1.4)   | 0 (0.0)   | 1 (0.7)  | 5 (3.4)   | 9 (6.2)   |
| Anosmia                | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 2 (1.4)   | 2 (1.4)   | 0 (0.0)  | 1 (0.7)   | 1 (0.7)   |
| Abdominal Pain         | 0 (0.0)             | 2 (1.4)  | 1 (0.7)  | 2 (1.4)   | 1 (0.7)   | 6 (4.1)  | 4 (2.8)   | 6 (4.1)   |
| Diarrhoea              | 0 (0.0)             | 1 (0.7)  | 2 (1.4)  | 2 (1.4)   | 2 (1.4)   | 2 (1.4)  | 0 (0.0)   | 9 (6.2)   |
| Dysosmia               | 0 (0.0)             | 1 (0.7)  | 0 (0.0)  | 2 (1.4)   | 1 (0.7)   | 0 (0.0)  | 7 (4.8)   | 5 (3.4)   |
| Ear Pain               | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 2 (1.4)   | 1 (0.7)   | 0 (0.0)  | 0 (0.0)   | 3 (2.1)   |
| Red Welts FL           | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 1 (0.7)   | 0 (0.0)   | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   |
| Fatigue                | 0 (0.0)             | 1 (0.7)  | 0 (0.0)  | 1 (0.7)   | 2 (1.4)   | 0 (0.0)  | 4 (2.8)   | 6 (4.1)   |
| Persistent Cough       | 0 (0.0)             | 0 (0.0)  | 4 (2.8)  | 0 (0.0)   | 1 (0.7)   | 4 (2.8)  | 7 (4.8)   | 6 (4.1)   |
| Swollen Glands         | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 0 (0.0)   | 1 (0.7)   | 0 (0.0)  | 4 (2.8)   | 2 (1.4)   |
| Blisters on Feet       | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   | 0 (0.0)  | 4 (2.8)   | 0 (0.0)   |
| Dyspnoea               | 0 (0.0)             | 0 (0.0)  | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   |

Supplementary Table S 7. Symptom prevalence and distribution during the first week after vaccination, in symptomatic individuals testing negative for SARS-CoV-2 infection (1:1 matched cohort). Data report number (percentage in parentheses) of individuals with each symptom on each day after first vaccination (N=145).

|                        |         |          |           | Negative  | SARS-CoV  | -2        |           |           |
|------------------------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Days after vaccination | 0 (0.0) | 1 (0.7)  | 2         | 3         | 4         | 5         | 6         | 7         |
| Headache               | 1 (0.7) | 13 (9.0) | 17 (11.7) | 16 (11.0) | 30 (20.7) | 23 (15.9) | 17 (11.7) | 26 (17.9) |
| Chills or Shivers      | 0 (0.0) | 11 (7.6) | 10 (6.9)  | 8 (5.5)   | 17 (11.7) | 7 (4.8)   | 5 (3.4)   | 14 (9.7)  |
| Myalgias               | 0 (0.0) | 2 (1.4)  | 5 (3.4)   | 1 (0.7)   | 6 (4.1)   | 8 (5.5)   | 5 (3.4)   | 7 (4.8)   |
| Fever                  | 0 (0.0) | 6 (4.1)  | 5 (3.4)   | 6 (4.1)   | 8 (5.5)   | 7 (4.8)   | 7 (4.8)   | 6 (4.1)   |
| Dizziness              | 0 (0.0) | 4 (2.8)  | 2 (1.4)   | 11 (7.6)  | 10 (6.9)  | 8 (5.5)   | 7 (4.8)   | 5 (3.4)   |
| Sneezing               | 0 (0.0) | 1 (0.7)  | 0 (0.0)   | 4 (2.8)   | 4 (2.8)   | 1 (0.7)   | 1 (0.7)   | 4 (2.8)   |
| Nausea                 | 1 (0.7) | 2 (1.4)  | 3 (2.1)   | 4 (2.8)   | 11 (7.6)  | 3 (2.1)   | 3 (2.1)   | 13 (9.0)  |
| Sensitive Skin         | 0 (0.0) | 0 (0.0)  | 0 (0.0)   | 1 (0.7)   | 1 (0.7)   | 0 (0.0)   | 0 (0.0)   | 2 (1.4)   |
| Rhinorrhoea            | 0 (0.0) | 0 (0.0)  | 1 (0.7)   | 2 (1.4)   | 5 (3.4)   | 11 (7.6)  | 2 (1.4)   | 6 (4.1)   |
| Eye Soreness           | 0 (0.0) | 2 (1.4)  | 2 (1.4)   | 4 (2.8)   | 1 (0.7)   | 5 (3.4)   | 3 (2.1)   | 0 (0.0)   |
| Loss of Appetite       | 0 (0.0) | 0 (0.0)  | 5 (3.4)   | 2 (1.4)   | 4 (2.8)   | 3 (2.1)   | 2 (1.4)   | 2 (1.4)   |
| Chest Pain             | 0 (0.0) | 0 (0.0)  | 1 (0.7)   | 1 (0.7)   | 1 (0.7)   | 2 (1.4)   | 2 (1.4)   | 1 (0.7)   |
| Sore Throat            | 0 (0.0) | 1 (0.7)  | 1 (0.7)   | 2 (1.4)   | 4 (2.8)   | 9 (6.2)   | 2 (1.4)   | 3 (2.1)   |
| Brain Fog              | 0 (0.0) | 0 (0.0)  | 5 (3.4)   | 4 (2.8)   | 1 (0.7)   | 1 (0.7)   | 6 (4.1)   | 3 (2.1)   |
| Hoarse Voice           | 0 (0.0) | 0 (0.0)  | 1 (0.7)   | 0 (0.0)   | 2 (1.4)   | 0 (0.0)   | 1 (0.7)   | 2 (1.4)   |
| Anosmia                | 0 (0.0) | 0 (0.0)  | 0 (0.0)   | 1 (0.7)   | 1 (0.7)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   |
| Abdominal Pain         | 0 (0.0) | 1 (0.7)  | 1 (0.7)   | 3 (2.1)   | 4 (2.8)   | 4 (2.8)   | 7 (4.8)   | 4 (2.8)   |
| Diarrhoea              | 0 (0.0) | 0 (0.0)  | 2 (1.4)   | 0 (0.0)   | 3 (2.1)   | 5 (3.4)   | 1 (0.7)   | 3 (2.1)   |
| Dysosmia               | 0 (0.0) | 1 (0.7)  | 2 (1.4)   | 0 (0.0)   | 1 (0.7)   | 4 (2.8)   | 0 (0.0)   | 4 (2.8)   |
| Ear Pain               | 0 (0.0) | 1 (0.7)  | 0 (0.0)   | 1 (0.7)   | 2 (1.4)   | 0 (0.0)   | 1 (0.7)   | 3 (2.1)   |
| Red Welts FL           | 0 (0.0) | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 1 (0.7)   |
| Fatigue                | 0 (0.0) | 2 (1.4)  | 4 (2.8)   | 2 (1.4)   | 0 (0.0)   | 0 (0.0)   | 1 (0.7)   | 1 (0.7)   |
| Persistent Cough       | 0 (0.0) | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   | 2 (1.4)   | 3 (2.1)   | 0 (0.0)   | 0 (0.0)   |
| Swollen Glands         | 0 (0.0) | 2 (1.4)  | 1 (0.7)   | 1 (0.7)   | 2 (1.4)   | 0 (0.0)   | 1 (0.7)   | 0 (0.0)   |
| Blisters on Feet       | 0 (0.0) | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   |
| Dyspnoea               | 0 (0.0) | 0 (0.0)  | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   | 0 (0.0)   |
|                        |         |          |           |           |           |           |           |           |

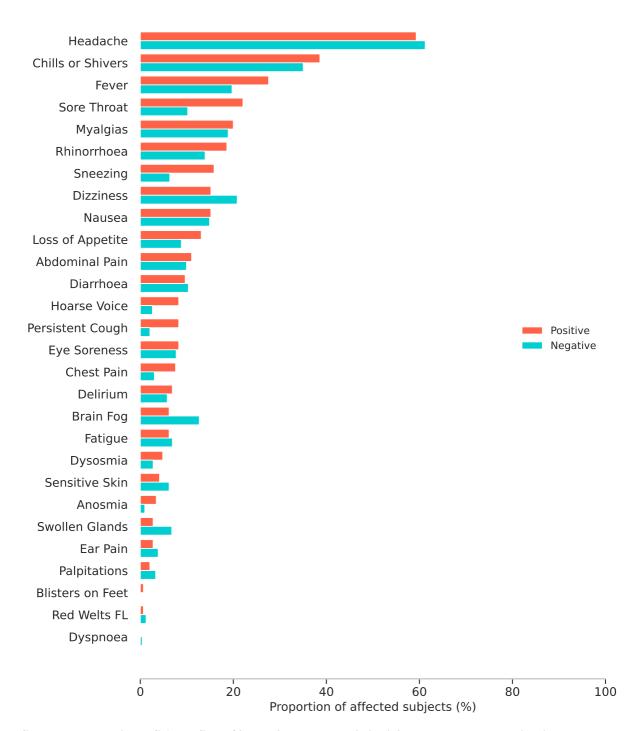
Supplementary Table S 8. Duration of individual symptoms after first vaccination (irrespective of symptom prevalence) in individuals testing positive or negative for SARS-CoV-2 (N=145 for each cohort). Median value of symptom duration ([0.25; 0.75] quantiles) is detailed per symptom. Differences in duration distribution per symptom were assessed using Mann-Whitney-U tests. P-value refers to the result of the statistical test.

| Symptoms          | Positive SARS-CoV-2 | Negative SARS-CoV-2 | P-Value |
|-------------------|---------------------|---------------------|---------|
| Headache          | 1 [1; 2]            | 1 [1; 2]            | 0.4428  |
| Chills or Shivers | 1 [1; 1]            | 1 [1; 1]            | 0.7550  |
| Myalgias          | 1 [1; 2]            | 1 [1; 1]            | 0.4489  |
| Fever             | 1 [1; 1]            | 1 [1; 1]            | 0.1599  |
| Dizziness         | 1 [1; 2]            | 1 [1; 2]            | 0.7303  |
| Sneezing          | 1 [1; 1]            | 1 [1; 1.25]         | 0.4415  |
| Nausea            | 1 [1; 1]            | 1 [1; 1.75]         | 0.1033  |
| Sensitive Skin    | 1 [1; 1.75]         | 1 [1; 1]            | 0.6667  |
| Rhinorrhoea       | 1 [1; 1]            | 1 [1; 1]            | 0.9383  |
| Eye Soreness      | 1 [1; 2]            | 1 [1; 1]            | 0.3634  |
| Loss of Appetite  | 1 [1; 1.5]          | 1 [1; 1]            | 0.1015  |
| Chest Pain        | 1 [1; 2]            | 1 [1; 1]            | 0.4314  |
| Sore Throat       | 1 [1; 2]            | 1 [1; 1]            | 0.1747  |
| Brain Fog         | 2 [1; 3]            | 1 [1; 2]            | 0.2129  |
| Hoarse Voice      | 1 [1; 1.25]         | 1 [1; 1]            | 1.0000  |
| Anosmia           | 1 [1; 1]            | 1 [1; 1]            | 1.0000  |
| Abdominal Pain    | 1 [1; 1.25]         | 1 [1; 1]            | 0.8707  |
| Diarrhoea         | 1 [1; 1]            | 1 [1; 2]            | 0.0896  |
| Dysosmia          | 1 [1; 3.5]          | 2 [1; 2]            | 0.9825  |
| Ear Pain          | 1 [1; 1.5]          | 1 [1; 1.75]         | 1.0000  |
| Red Welts FL      | 1 [1; 1]            | 1 [1; 1]            | 1.0000  |
| Fatigue           | 1 [1; 1]            | 1 [1; 1]            | 0.7353  |
| Persistent Cough  | 1.5 [1; 2.25]       | 1 [1; 1.25]         | 0.5077  |
| Swollen Glands    | 1 [1; 1.75]         | 1 [1; 1]            | 0.8000  |
| Blisters on Feet  | 4 [4; 4]            | N/A                 | N/A     |
| Dyspnoea          | N/A                 | N/A                 | N/A     |
| Delirium          | 1 [1; 1.75]         | 2 [1; 3]            | 0.4775  |
| Palpitations      | 1 [1; 1]            | 1 [1; 1.5]          | 0.9066  |

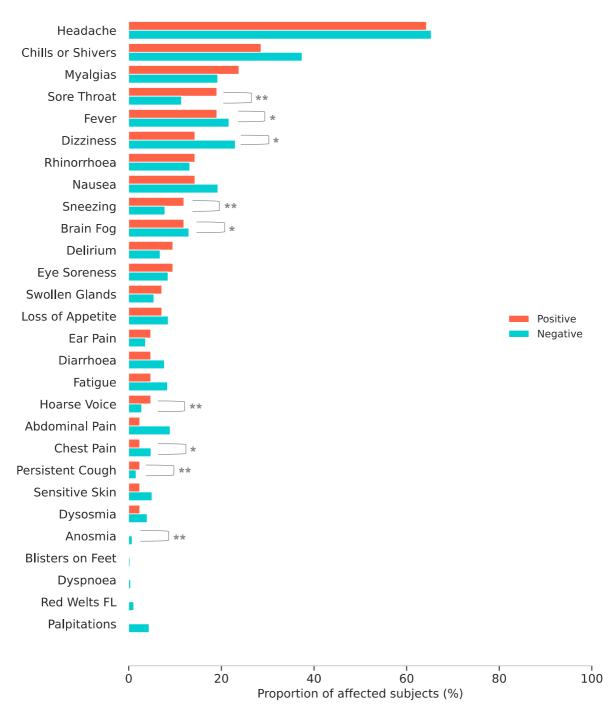
Supplementary Table S 9. Demographic information of vaccinated individuals testing positive (N=149) and a constructed cohort of equal size created by bootstrapping testing negative for SARS-CoV-2. Demographic information for the negative SARS-CoV-2 cohort was estimated based on the selected bootstrapped samples: thus, for most values the range is presented (as [Minimum; Maximum]); when appropriate median value [IQR] is presented (age, BMI). BMI: Body Mass Index. IQR: Inter Quartile Range.

|                           | Vaccinated Cohort    |                      |                      |  |                      |                      |  |  |  |
|---------------------------|----------------------|----------------------|----------------------|--|----------------------|----------------------|--|--|--|
|                           | Positive tes         | t for SARS-CoV       | V-2 infection        | Negative test for SARS-CoV-2 infection |                      |                      |  |  |  |
|                           | O-AZ                 | PB                   | Full cohort          | O-AZ                                   | PB                   | Full cohort          |  |  |  |
| Number                    | 72                   | 77                   | 149                  | 72                                     | 77                   | 149                  |  |  |  |
| Males (%)                 | 37.0                 | 27.6                 | 32.2                 | [36.9; 37.0]                           | [27.6; 27.6]         | [32.2; 32.2]         |  |  |  |
| Age, years (median [IQR]) | 62.0 [50.0;<br>71.0] | 59.0 [50.0;<br>67.5] | 61.0 [50.0;<br>70.0] | 62.1 [49.3;<br>71.0]                   | 59.4 [50.5;<br>67.8] | 60.7 [50.3;<br>70.4] |  |  |  |
| BMI (median [IQR])        | 25.0 [22.7;<br>28.0] | 26.1 [23.5;<br>29.3] | 25.4 [23.4;<br>29.2] | 25.1 [22.9;<br>28.3]                   | 26.1 [23.6;<br>29.5] | 25.6 [23.2;<br>29.0] |  |  |  |
| Lung disease (%)          | 11.1                 | 11.8                 | 11.4                 | [5.5; 15.1]                            | [5.3; 22.4]          | [7.4; 14.1]          |  |  |  |
| Kidney Disease (%)        | 0.0                  | 1.3                  | 0.7                  | [0.0; 4.1]                             | [0.0; 5.3]           | [0.0; 3.4]           |  |  |  |
| Diabetes (%)              | 5.5                  | 6.6                  | 6.0                  | [2.7; 10.9]                            | [2.6; 7.9]           | [2.7; 8.1]           |  |  |  |
| Heart Disease (%)         | 9.7                  | 5.3                  | 7.4                  | [2.7; 10.9]                            | [5.3; 11.8]          | [4.0; 7.4]           |  |  |  |
| Cancer (%)                | 0.0                  | 5.3                  | 2.7                  | [0.0; 6.9]                             | [0.0; 3.9]           | [0.7; 4.7]           |  |  |  |
| Healthcare workers (%)    | 0.0                  | 13.2                 | 6.7                  | [0.0; 2.7]                             | [6.6; 14.5]          | [0.7; 5.4]           |  |  |  |
| Visit to hospital (%)     | 1.4                  | 1.3                  | 1.3                  | [0.0; 1.4]                             | [0.0; 3.9]           | [0.0; 2.0]           |  |  |  |

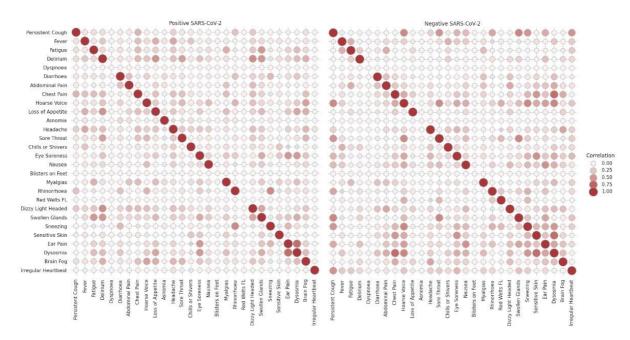
## **Supplementary Results: Figures**



Supplementary Figure S 1. Profiles of illness in symptomatic individuals early post-vaccination, comparing symptom prevalence (symptom reported at any time during first week) in positive vs. negative cases (N=145 for each cohort), using bootstrapping to construct the negative cohort. The confidence interval (black bar) for the negative population is due to use of bootstrapping to create the negative population.



Supplementary Figure S 2. Profiles of illness in symptomatic individuals early post-vaccination, comparing symptom prevalence (symptom reported at any time during first week) in individuals testing positive (N=145) vs. negative (N=12112) for SARS-CoV-2 infection. \*p < 0.05 \*\*p < 0.01.



Supplementary Figure S 3. Correlation of symptoms experienced early post-vaccination in individuals testing positive (left image) or negative (right image) for SARS-CoV-2 infection (N=149). The colour and size of the marker encode the Spearman-rank correlation. Darker colours represent higher correlation of symptoms.